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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,018	10/20/2003	Maarten Menzo Wentink	050337-1290 (05CXT0069WL)	4108
24504 7590 03/17/2008 THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 600 GALLERIA PARKWAY, S.E. STE 1500 ATLANTA, GA 30339-5994			EXAMINER TAYLOR, NICHOLAS R	
			ART UNIT 2141	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/689,018	<b>Applicant(s)</b> WENTINK, MAARTEN MENZO	
	<b>Examiner</b> NICHOLAS TAYLOR	<b>Art Unit</b> 2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on January 14th, 2008, has been entered.

2. Claims 1-21 have been presented for examination and are rejected.

### ***Response to Arguments***

3. Applicant's arguments filed January 14th, 2008, have been fully considered but they are deemed not persuasive.

4. In the remarks, applicant argued in substance that:

(A) Prior art of Mangold does not teach that the backoff interval is based on at least one previous interval between two successive accesses to the shared resource.

As to point (A), Mangold teaches the use of a shared resource in the form of the shared wireless protocol 802.11e (abstract and §1). Mangold teaches an enhanced

distribution coordination function (EDCF) that realizes quality of service support over 802.1e (see §3 intro). Further, Mangold teaches collision management through the use of backoff intervals that prevent wireless stations from contending for access to the shared resource (§3.1 paragraphs 1 and 2). Mangold calculates the backoff intervals based on a formula that takes into consideration a persistence factor, a maximum allowable interval time, previous back intervals, and traffic priority (see specifically §3.1).

In describing the EDCF function, Mangold discloses that the EDCF function makes use of an Arbitration Interframe Space (AIFS) in place of a standard distributed coordination function interframe space (DIFS). The AIFS enables an interframe spacing that contemplates traffic categories and prioritization and is therefore not limited to constant frame spacing.

Mangold describes using the EDCF function with AIFS in both inconsecutive and consecutive access to the shared resource. In both scenarios, the AIFS must be used to space the transmission attempts (e.g., see fig. 4 and similar DIFS usage in fig. 1). However, in the inconsecutive scenario, an unsuccessful transmission attempt may have occurred (breaking the chain of successive access) and a special interval must be calculated to determine the backoff. Rather than doubling a DIFS value, the EDCF function uses formula that includes a persistence factor that is specific to the traffic categorization and the old contention window (see  $\text{newCW}[\text{TC}]$  calculation in 3.1). Alternatively, the host may have simply been interrupted by another station's transmission opportunity and must therefore delay the backoff countdown until the

respective ACK is sent (see 3.1, where the countdown resumes beginning with the last slot interval of the AIFS period).

In the consecutive scenario, the backoff interval may include the AIFS combined with a counter drawn from an interval between 1 and CW+1 that is restricted by the CWmin[TC] parameter (see paragraphs 1 and 2 of section 3.1, and the illustrative application of the DIFS function in fig. 1). Thus, in either situation the backoff interval is "based on at least one previous interval between two successive accesses to the shared resource."

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4-7, 13, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mangold, et al. ("IEEE 802.11e Wireless LAN for Quality of Service").

7. As per claims 1 and 13, Mangold teaches a method comprising:  
using a shared resource; and (Mangold, sections 1 and 3 where 802.11 is used)  
refraining from contending for access to said shared resource for a backoff  
interval after the last use of said shared resource; (Mangold, sections 2.1 and 3.1 where  
the enhanced distribution coordination function refrains from contending access)

wherein said backoff interval is based on at least one previous interval between two successive accesses to the shared resource (Mangold, see, e.g., section 3.1 and fig. 4, where the backoff interval is based on previous intervals in the calculations using AIFS in the ECDF function during successive access to the shared resource).

8. As per claims 2 and 17, Mangold teaches the system further wherein said shared resource is a shared-communications channel and wherein said transmitter communicates over said shared-communications channel in accordance with an IEEE 802.11 protocol (Mangold, sections 1 and 3 where 802.11 is used).

9. As per claim 4, Mangold teaches the system further wherein said backoff interval is further based on at least one of:

i) a moving average; and ii) a contention window value (Mangold, section 3.1 ECDF calculations).

10. As per claims 5 and 16, Mangold teaches the system further wherein said backoff interval comprises a time interval that is based on a random number (Mangold, see 3.1 see calculation of EDCF).

11. As per claim 6, Mangold teaches the system further wherein said time interval can assume a nonzero value only after an unsuccessful attempt to transmit occurs (Mangold, section 3.1, where an interval is calculated after unsuccessful attempts).

12. As per claim 7, Mangold teaches the system further wherein said backoff interval is constrained to be at least as long as an IEEE 802.11 distributed interframe space (Mangold, see interframe spacing of fig. 1 and 4 and discussion of legacy interoperability in section 3.1).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 3, 8-12, 14, 15, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangold, et al. ("IEEE 802.11e Wireless LAN for Quality of Service") and Soomro et al. (U.S. PGPub 2004/0042435).

15. As per claims 3 and 14, Mangold teaches the above, yet fails to teach the system further comprising powering down a receiver for at least a portion of said backoff interval.

Soomro teaches a wireless resource sharing system that uses 802.11e (Soomro, paragraph 0040-0042) while using a power saving mode to power down a receiver during backoff intervals (Soomro, paragraphs 0058-0060 and fig. 9).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have combined Mangold and Soomro to provide the power saving of Soomro in the system of Mangold, because doing so would allow the advantageous and desirable use of a power-saving mode that is beneficial to 802.11 devices (Soomro, paragraphs 0010 and 0011).

16. As per claim 15, Mangold-Soomro teaches the system further wherein said receiver is also for receiving a value representing said backoff interval (Mangold, sections 3.1 and 3.2 where a value representing a backoff interval is transmitted).

17. As per claims 8 and 18, Mangold teaches a method comprising:  
using a shared resource; and (Mangold, sections 1 and 3 where 802.11 is used)  
refraining from contending for access to said shared resource for a backoff interval after the last use of said shared resource; (Mangold, sections 2.1 and 3.1 where the enhanced distribution coordination function refrains from contending access)  
wherein said backoff interval is based on at least one previous interval between two successive accesses to the shared resource (Mangold, see, e.g., section 3.1 and fig. 4, where the backoff interval is based on previous intervals in the calculations using AIFS in the ECDF function during successive access to the shared resource).

Mangold fails to teach powering down a receiver for at least a portion of said backoff interval.



Soomro teaches a wireless resource sharing system that uses 802.11e (Soomro, paragraph 0040-0042) while using a power saving mode to power down a receiver during backoff intervals (Soomro, paragraphs 0058-0060 and fig. 9).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have combined Mangold and Soomro to provide the power saving of Soomro in the system of Mangold, because doing so would allow the advantageous and desirable use of a power-saving mode that is beneficial to 802.11 devices (Soomro, paragraphs 0010 and 0011).

18. As per claim 9, Mangold-Soomro teaches the system further comprising transmitting a frame using said shared resource after said refraining, wherein said shared resource is a shared-communications channel (Mangold, sections 1 and 3 where 802.11 is used).

19. As per claim 10, Mangold-Soomro teaches the system further wherein said backoff interval is further based on at least one of: i) a moving average; and ii) a contention window value (Mangold, section 3.1).

20. As per claims 11 and 21, Mangold-Soomro teaches the system further wherein said backoff interval comprises a time interval that is based on a random number (Mangold, see 3.1 see calculation of EDCF).

21. As per claim 12, Mangold-Soomro teaches the system further wherein said time interval can assume a nonzero value only after an unsuccessful attempt to transmit occurs (Mangold, section 3.1, where an interval is calculated after unsuccessful attempts).

22. As per claim 19, Mangold-Soomro teaches the system further comprising an access point for: (1) determining said backoff interval; and (2) distributing a value representing said backoff interval (Mangold, section 3.0-3.1 discussion of determining backoff intervals and 3.2 where a value representing a backoff interval is transmitted).

23. As per claim 20, Mangold-Soomro teaches the system further wherein said station is also for receiving said value representing said backoff interval (Mangold, sections 3.1 and 3.2 where a value representing a backoff interval is transmitted).

### ***Conclusion***

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas Taylor whose telephone number is (571) 272-3889. The examiner can normally be reached on Monday-Friday, 8:00am to 5:30pm, with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 2145

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/NT/  
Nicholas Taylor  
Examiner  
Art Unit 2141

/Jason D Cardone/  
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